BMPs, Engineering Review and Site Plans Project Checklist

Michigan Department of Environmental Quality
Surface Water Quality Division

Nonpoint Source Program

Steven E. Chester, Director
Jennifer M. Granholm, Governor

EQP-5849

The Process for Engineering Review of Site Plans

- ☐ 9 weeks before the grantee wants to construct BMPs at a site, they should send their site plan to the Project Administrator. This gives the Project Administrator 1 weeks to review the plans for completeness before forwarding the plans to the engineer for review.
- ☐ The Project Administrator will review the plans and compare them to the checklist on pages 4 and 5 of this document.
  - ☐ If there are items missing, the PA will contact the grantee for the additional information.
  - ☐ If all items on the checklist are included, the PA will forward the site plans to the NPS engineer.
- ☐ The NPS engineer will log in site plans as they arrive in the mail. As they log them in, they will take a quick look at the plans and give themselves a due date not more than 8 weeks from the date in which the plans arrive in the office.
- ☐ The NPS engineer will then contact the Project Administrator with the due date they gave themselves for the plan review.
- ☐ The Project Administrator will contact the grantee to let them know when they might expect to have a review done on their plans.
- ☐ The Nonpoint Source engineer will review the plans:
  - ☐ If the engineer approves the plan:
    - ☐ The engineer will contact (call or e-mail) the Project Administrator of their approval.
    - ☐ If the Project Administrator agrees with the engineer that the plan should be approved, the engineer will compose and send a letter, stating that the plan has been approved, with a copy of the approved plan.
  - ☐ If the plan is not approved, the engineer will contact the Project Administrator to let them know the plan is not approved.
    - ☐ The engineer will draft a letter to the Project Administrator explaining the deficiencies and, where appropriate, how the plan can be improved.
    - ☐ The PA will then forward a letter to the grantee explaining that SWQD funding cannot be used to fund the implementation of the site plan based on the engineer's analysis.
- ☐ The NPS engineer will provide copies of the approval letter and approved site plan to the Nonpoint Source Unit and the PA.

In order to receive payment, the grantee must receive written approval of the site or practice from the Project Administrator.

Engineering Review of Site Plans--Detailed

Best Management Practices (BMPs)

What they are: BMPs are vegetative, managerial or structural practices used to reduce nonpoint sources of pollution. BMPs are described in the technical documents NPS staff develop to help grantees install the physical BMPs. All site plans contain BMPs.

What's required:

- Best management practices funded with nonpoint source funds are to be incorporated into the project *Work Plan* and therefore become part of the project contract between the State and the grantee.
- BMPs are to be "packaged" together in a site plan.
- All site plans will be submitted to the NPS engineer for review and approval prior to installation.

BMP Guides available from the Nonpoint Source Program (as of 9/14/98):

- *The Guidebook of Best Management Practices for Michigan Watersheds* includes technical standards and specifications for over 50 BMPs, for use on construction sites, golf courses, parks and urban areas. Each practice refers to other practices in the manual that are often used as a system. The first 60 pages of the guidebook contain useful suggestions for selecting BMPs. The Guidebook is 460 pages and distributed by the NPS Program in a 3-ring binder. This document is also distributed as part of the Stormwater Program's Operator Training classes.
- *Water Quality Management Practices on Forest Land* is a field-sized, spiral-bound manual which includes the BMPs that should be considered when managing forest lands. It discusses proper siting and design of new roads, skid trails, landings, and the importance of buffer strips in protecting water quality.
- *Water Quality and the Working Forest*, a 15-minute video on water quality and the impacts of sediment on water quality. The need for forestry best management practices is discussed. Produced in Michigan for the Nonpoint Source Program and intended for foresters and timbermen. Published in 1998.
- *Practical Guide to Forest Water Quality,* a 21-minute video on the impact of sediment on water quality, and an overview of forestry best management practices and why they are needed. Produced in Michigan for the Nonpoint Source Program and intended for landowners. Published in 1998.
- *Natural Resource Protection Strategy for Michigan Golf Courses* is a 23-page document that includes practical information for golf course superintendents. It is packaged with two checklists: a detailed checklist of management practices useful for planned and existing golf courses, and a one-page checklist which serves as a permit application for new golf courses.
- *Agricultural Best Management Practices for Michigan's Nonpoint Source Pollution Program*, which is a technical document written mostly for Soil Conservation District staff and staff of the DEQ Nonpoint Source Program. This document includes 19 systems of BMPs that can be used on farms.

Site Plans

What they are: Plans that show and explain site conditions, as well as the best management practices that are proposed to be implemented at the site.

What is required:
An engineered site plan is required for all sites where vegetative or structural BMPs will be installed. A minimum of three copies of plans must be submitted, one for SWQD district office, one for SWQD NPS Unit and one for the grantee. The engineered site plan should include all of the following elements unless it is demonstrated in writing that they do not apply:

- ☐ A clear statement of the goal of the project as it relates to the goal of the watershed plan the project is based on.
- ☐ A drawing of the site including:
  - ☐ The location of natural features, including waterbodies and wetlands.
  - ☐ The location of all physical structures of relevance (e.g. storm sewers, utilities, drainage ditches).
  - ☐ Location of all proposed BMPs.
  - ☐ Existing elevations/grades.
  - ☐ Design elevations/grades.
  - ☐ Some indication of the direction of drainage (if no elevation/grades).
  - ☐ The seal of a professional engineer, registered landscape architect, or equivalent, as appropriate for the project and approved by the Department.
  - ☐ A minimum of 3 copies of the site plan drawing. When the site plan is approved, a copy of the approved drawing will be sent to the grantee, the SWQD Nonpoint Source District files and the SWQD Nonpoint Source Unit files.

Engineered drawings are preferred. Architectural drawings, Computer Aided Design drawings and others are acceptable if legible.

- ☐ The basis of design, including:
  - ☐ Pertinent land use information.
  - ☐ Pertinent soils information.
  - ☐ Design flows.
  - ☐ Design calculations for all practices, including computer outputs and inputs, if applicable.
  - ☐ Any unusual circumstances, concerns or design limitations.
  - ☐ An indication that maintenance of the practice(s) has been agreed to by the grantee or landowner (submit a copy of the landowner letter).
  - ☐ An analysis of the impact of the proposed practices on existing conveyances, BMPs or the stream channel.

- ☐ Specifications Used. Include the specifications used. This can be included on the site plan itself or as part of the basis of design.

☐ A statement verifying that all applicable permits will be obtained before implementation. (Note that the grantee may be able to attach a copy of the "Standard Statements" sheet submitted as part of a grant application package.)

☐ Maintenance plan. A maintenance plan specifies who will do what to maintain the integrity of BMPs that have been implemented at a particular site. Maintenance plans should include the frequency and conditions upon which regular maintenance activities will be performed, how maintenance problems will be addressed, and who will be responsible for performing the maintenance activities. These must be submitted by the grantee to the nonpoint source engineer with the site plan.

- At a minimum, the grantee must submit written documentation indicating that the individuals or agency(ies) responsible for maintenance have been made aware of their responsibilities in the maintenance plan.
- Preferably, those individuals or agencies responsible for maintenance will sign a maintenance agreement, which is a contract between the landowner and another agency (usually the grantee) to provide for the maintenance of practices.

☐ General information for the reviewing engineer must be included in 1 – 4 or in a separate cover letter. General information includes:

- Project Name.
- Site Name or Location.
- Name and Phone Number of Project Contact Person.
- Name and Phone Number of Engineer that designed the structure(s).

Engineering Review and Approval of Plans

What it is:

Engineering review of site plans by Nonpoint Source is done to ensure plans developed for nonpoint source projects are technically sound, protect water quality, and meet the goals of the project.

Why it is done:

Engineering review is provided primarily for three reasons:

1. To identify, evaluate and develop BMPs for use in Michigan. Engineering staff of the Nonpoint Source Unit are responsible for developing and maintaining BMP guidance documents, which provide guidance to watershed managers and DEQ staff on effective techniques for preventing and controlling nonpoint source runoff. DEQ engineer review of plans allows DEQ engineers developing BMPs to evaluate designs and BMP performances and determine their suitability for the BMP guidance documents.

2. Provide engineering technical support to SWQD staff, grantees and others in Michigan who apply BMPs. Nonpoint Source staff and grantees often seek advice on BMPs selection, design, placement and operation. Much of this work is done on-site or at meetings of interested individuals. Generally, this activity is conducted at the request of Project Administrators or in the course of reviewing site plans.

3. Review specific designs and specifications for BMPs funded with nonpoint source grant money to insure that the BMPs meet the goals of the project, and perform as desired to protect water quality. BMPs are selected by grantees as part of a project to reach a water quality goal. Sometimes the selected practices haven't been used before or are being

applied to new situations. As a result, there is often no specific guidance for the use of the practice in a given situation. Other times, existing specifications haven't been applied correctly for the given situation, or aren't the right specifications to properly address water quality issues at the site. NPS engineers determine if the selected practices are technically sound, will protect water quality, and be applied in a way that will help reach the goal of the project. For 319 projects, EPA requires that all practices paid for with grant funds or used as match be in Michigan's BMP guidance documents or reviewed and approved by Nonpoint Source engineers.

What is required:

- Grantees or their subcontractors must submit site plans for any vegetative or structural practices, including any earth change activities, physical modifications of the stream channel and practices that modify hydrology. Site plans must meet the requirements listed in the section above.
- All structural and vegetative practices must be designed by a licensed professional engineer (P.E.) or architect or other professional working under a licensed engineer's authority.

Note: *DEQ Nonpoint Source engineers will not design structures, will not sign the designs as the responsible engineer, nor give anyone else permission to do so.*

When plans should be completed:

- Engineering plans need to be submitted to a nonpoint source engineer at least 8 weeks prior to the desired time of installation. Engineering review is available in Lansing in the Nonpoint Source Unit, as well in some district offices. Grantees should contact their Project Administrator to determine where site plans should be submitted.

What happens after plans are submitted to DEQ:

- DEQ Nonpoint Source engineers review site plans to determine if grant funding may be used. They may also ask for additional information from the grantee if the information submitted is not adequate for them to perform the review. **If the NPS engineer requests additional information, the 8-week "clock" starts over.**

Grantees and sub-contractors that implement BMPs without the prior written approval of a DEQ Nonpoint Source engineer risk not being reimbursed for the implemented BMPs.

Items that may *not* be approvable:

- Projects funded with federal Section 319 and Clean Michigan Initiative funds cannot fund BMPs required as part of a NPDES permit.

- In addition, projects funded with federal Clean Water Act, Section 319 funds cannot fund:
  - Practices that have a stipulated funding source such as a drain clean-out (which is done via an assessment of the landowners in the watershed).
  - BMPs that don't demonstrate a new practice in a watershed. EPA intended Section 319 to be used to demonstrate how BMPs can be used to protect and improve water quality. They will be asking states to show how proposals from states submitted to them for funding will demonstrate nonpoint source control in a watershed.

Helpful hint for grantees:

Before a detailed engineering plan is developed, an 8.5” x 11” drawing can be sent to the nonpoint source engineer to discuss the system of BMPs proposed for a site. This will help eliminate frustration on the part of the engineer drawing up the plans, as they will know what is expected of them in the detailed site plan. A skeletal plan—also called a water quality resource management plan--should include:

- A drawing showing the location of each BMP proposed for the site and the waterbody and other important natural features.
- Basic design considerations, including soils, specific site conditions, flow information or any other information that might be helpful to the NPS engineer.